

# United Villages: A Case Study on Building Materials Reuse in Portland, Oregon



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With Our United Villages and the Portland ReBuilding Center

January 2009

Project Funder: NeighborWorks® America

## ***Acknowledgements***

- A particularly heartfelt thanks to all of the staff at Our United Villages for so graciously and generously sharing their time, their knowledge, their enthusiasm, and their experience.
- Many thanks to Tom Deyo and NeighborWorks® America for conceiving of and supporting this project.
- Thanks to Brad Guy, President of the Building Materials Reuse Association, for data on the problem of building-related construction and demolition debris and building reuse centers in the United States.

## Overview

### Introduction: the case for building materials re-use

In 2003, building-related construction and demolition (C&D) debris totaled more than 164 million tons a year, up from 136 million tons a year in 1993.<sup>1</sup> The largest share of this debris comes from building demolitions (53%), followed by building remodeling and renovation (38%) and finally construction (9%).<sup>2</sup> Together, it comprises nearly 40 percent of the combined C&D and municipal solid waste stream.<sup>3</sup> Landfilling this material incurs a significant economic cost. In 2004, the national average landfill tipping fee was \$35 per ton,<sup>4</sup> putting the national bill for landfilling construction and demolition debris at something on the order of \$5.7 billion.

Moreover, landfilling this debris also generates a considerable environmental cost. Landfill space is used up and fossil fuels are expended to transport and store debris; fossil fuels are used, natural resources depleted, and toxins generated in the production and transport of replacement materials. An environmental cost calculator prepared by the Deconstruction Institute and the University of Florida provides some examples:<sup>5</sup>

- Some 33 million tons of wood-related construction and demolition debris are buried each year in the US, releasing about 5 million tons of carbon equivalent in the form of methane gas. These greenhouse gas emissions are equivalent to the annual emissions of 3.7 million cars.
- The average (2,000 square foot) American home, if demolished, would produce 10,000 cubic feet of debris. Recycling the steel and plastics in it would save almost 3,000 pounds of CO<sub>2</sub> emissions. Salvaging the wood could yield 6,000 board feet of reusable lumber - equivalent to saving 33 mature trees.

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<sup>1</sup> US EPA statistics cited by Brad Guy, Assoc. AIA, LEED™ AP

<sup>2</sup> Franklin Associates (1998). "Characterization Of Building-Related Construction And Demolition Debris In The United States." US Environmental Protection Agency Report No. EPA530-R-98-010. The study further notes that 245,000 residential units and 44,000 commercial buildings are demolished annually.

<sup>3</sup> Environmental Protection (2006). Fact Sheet: Construction, Demolition Debris – What Can be Reused, Recycled. Available on the internet at:  
<http://www.eponline.com/articles/53937/>

<sup>4</sup> Edward Repa (2005). "2005 Tip Fee Survey." National Solid Waste Management Association Research Bulletin 05-3.

<sup>5</sup> The Deconstruction Institute environmental cost calculator is available at:  
<http://www.deconstructioninstitute.com/calc1.php>

- The building materials in the average American home contain about 892 million Btu of embodied energy – the total amount of energy used to produce, transport and assemble the materials into a home. This amount is equivalent to 7,826 gallons of gasoline. Reusing or recycling these materials would recapture much of this embodied energy rather than wasting it.
- One year of construction and demolition debris is enough to build a wall 30 feet high and 30 feet thick around the entire coast of the continental United States (4,993 miles long).

Lastly, landfilling this debris represents an opportunity cost for the many people and organizations that could have used the materials if they had been salvaged.

As the table below shows, the construction and demolition “waste” stream consists of many materials that are reusable; others that are not reusable may be recyclable:<sup>6</sup>

<b>Material Components</b>	<b>Content Examples</b>
Wood	Forming and framing lumber, stumps/trees, engineered wood
Drywall	Sheetrock (wallboard), gypsum, plaster
Metals	Pipes, rebar, flashing, wiring, framing
Plastics	Vinyl siding, doors, windows, flooring, pipes, packaging
Roofing	Asphalt, wood, slate, and tile shingles, roofing felt
Masonry	Cinder blocks, brick, masonry cement
Glass	Windows, mirrors, lights
Miscellaneous	Carpeting, fixtures, insulation, ceramic tile
Pavement	Asphalt pavement, concrete pavement
Cardboard	From newly installed items such as appliances and tile

As described by the Reuse Development Organization, or ReDO:

“Reuse is the second priority on the national solid waste management hierarchy [reduce, reuse, recycle]. Reuse means that you redistribute materials from one who no longer needs it to those who can still find use in the item(s). Reuse conserves valuable natural resources, reduces the amount of water and air pollution and green house gases, and is a means for getting materials to disadvantaged people and organizations.”<sup>7</sup>

Materials reuse can happen through many forums that are familiar to most people – such as salvage yards, garage sales, flea markets, and “drop and swap” stations at landfills. But

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<sup>6</sup> Franklin Associates (1998). “Characterization Of Building-Related Construction And Demolition Debris In The United States.” US Environmental Protection Agency Report No. EPA530-R-98-010

<sup>7</sup> Reuse Development Organization. <http://www.redo.org/>

now, enterprising community groups and businesses across the country are working to promote greater reuse of building materials by establishing reuse centers. These centers accept donations of salvaged building materials and resell or donate them to individual households as well as a variety of other community organizations. Many of them also provide DeConstruction Services, carefully dismantling buildings or parts of buildings that would otherwise be demolished, so as to salvage a large percentage of the materials in the building. Just a few examples of these centers are:<sup>8</sup>

- The Loading Dock in Baltimore, Maryland
- Stardust Building Supplies in Phoenix and Mesa, Arizona
- The Habitat for Humanity ReStore in Kansas City, Missouri (and many other Habitat affiliates)
- The Building Materials Resource Center in Boston, Massachusetts
- The Portland Rebuilding Center in Portland, Oregon

According to Brad Guy, there were about 1,200 reused building materials stores in the US as of 2006, selling an estimated 315,000 to 360,000 tons per year of reused building materials.<sup>9</sup> The high end of this estimate is approximately 0.2% of total waste from building activities produced in the US each year per EPA estimates, suggesting that the industry is only beginning to scratch the surface of its potential.

Based on a survey of US reused building materials stores by Brad Guy, the average reused buildings materials store:<sup>10</sup>

- has 5.0 FTE employees and \$340,000 in annual revenues
- sells 300 tons of materials annually
- experienced growth in revenues of 45% from 2003 to 2006

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<sup>8</sup> At its website, [www.redo.org](http://www.redo.org), ReDO provides a directory for users to identify reuse centers for building materials as well as other materials (e.g. clothes, furniture, etc.) on its website. The Building Materials Reuse Association also has a directory of members available on its website, [www.ubma.org/](http://www.ubma.org/).

<sup>9</sup> Brad Guy, personal communication, September 9, 2008. This estimate excludes used clothing and household goods reuse sales, re-milling of lumber into high-end products and antique and high-end architectural salvage, and includes reused and donated “ordinary” surplus and salvaged building materials.

<sup>10</sup> Brad Guy, personal communication, September 9, 2008. Research was performed based at Carnegie Mellon University.

## **Overview of Our United Villages**

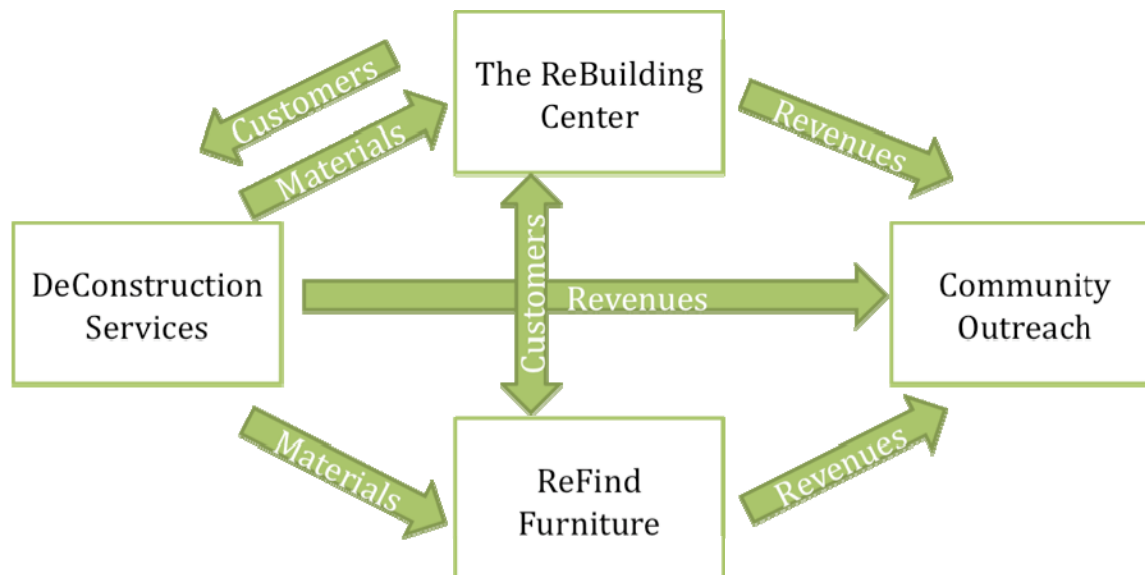
This document focuses in depth on one inspiring model, the Portland Rebuilding Center at Our United Villages, to illustrate an approach, and in the hopes of encouraging others to investigate and potentially initiate similar efforts in their own communities.

Our United Villages, based in Portland, Oregon, is a suite of inter-related programs:

- The Rebuilding Center, which is a building materials re-use warehouse and store that takes in donations of salvaged building materials and resells them at deeply discounted prices to all manner of individuals and organizations
- ReFind Furniture, which makes high-end furniture from reclaimed wood and building materials and also offers education workshops in home repair and crafts using reclaimed building materials.
- DeConstruction Services, which carefully takes apart buildings or parts of buildings and salvages the materials so that they can be re-used.
- Community Outreach, which is a community-building program employing the tools and techniques of asset-based community development.
- Our United Villages also employs a driving department, an administrative department, and a communications department, whose work is integrated into the programs described above.

Each of these programs is highly interdependent:

- The Rebuilding Center sells materials generated by DeConstruction Services as well as materials donated from other sources
- ReFind Furniture relies heavily on DeConstruction Services to provide reclaimed wood for its furniture, and assists sales at The Rebuilding Center by providing education and inspiration to customers
- DeConstruction Services serves as a significant source of materials for both the Rebuilding Center and ReFind Furniture, and in turn relies on the Rebuilding Center as a major source of customer referrals for its services
- Community Outreach is funded by the profits generated by these other business lines, and is a major vehicle through which Our United Villages meets its mission to strengthen the bonds of community where it works
- The driving, administrative, and communications department all support the programs of Our United Villages by providing transportation of building materials, administrative support, and marketing and communications support, respectively.



## Mission

The mission of Our United Villages is to inspire people to value and discover existing resources to strengthen the social and environmental vitality of communities.

Within this context, the materials reuse work of The Rebuilding Center is intended as a demonstration of neighborhood building – turning things that are misperceived as waste into community assets, and building relationships among community members in the process of doing so.

Our United Villages describes its work as follows:

### Community:

- Conducts grassroots outreach and provides resources and training for activities and initiatives that achieve inclusive, resilient, vibrant communities
- Inspires and motivates everyday people to work together using their collective creativity, expertise, and enthusiasm to create positive and lasting social change
- Provides volunteer opportunities for the community to gain hands-on knowledge and experience

### Environment:

- Contributes to the sustainability and health of our environment by turning waste that was perceived as a liability into a community asset
- Provides workshops, classes, presentations, information, resources and services that support diverting waste for reuse

- Inspires others to explore and implement creative reuse in their daily lives

#### Local Economy:

- Creates local job training, volunteer, and employment opportunities
- Provides affordable used building and remodeling materials for people of all income levels
- Provides donations to support local needs and community building projects

### **Outcomes and accomplishments**

The accomplishments of Our United Villages include:

- The ReBuilding Center currently diverts 8 tons of reusable building materials from landfills each day (almost 6 million pounds annually). These environmental benefits are the equivalent of:
  - 6848 mature trees saved from reusing all the lumber products rather than making new each year.
  - By reducing the amount of wood and other items in the landfill that create methane gas, and by not having to manufacture as many new items, it avoids the production of 103,750 pounds of greenhouse gas, like taking 593 cars off the road for an entire year
  - Enough items passed through the warehouse in one year to create almost 100 new, 1500-square foot homes.
  - The amount of “embodied” energy in the products re-used through The ReBuilding Center, and thus saved by not having to create new, equals 148,985 gallons of gas. Driving a hybrid at 55 mpg, you could go drive around the entire planet 273 times on the energy saved every year.
- Creating 45 “green collar” jobs. DeConstruction Services, for example, creates 4 to 6 FTE jobs for every FTE that would be spent on demolition.
- Utilizing organizational profits to support a community building staff of 3 people helping neighbors to work together to improve their neighborhoods. This staff serves all of the Portland metro area with no other source of operating subsidy.
- Making about 80 to 100 donations of materials per year to nonprofits and community groups, with an estimated value of around \$20,000. Many of these materials are re-used in creative new ways; others are put to their original use.



- The Portland Rebuilding Center is the winner of the Oregon Ethics in Business Award, the Oregon Entrepreneurs Forum Award, and The City of Portland's "BEST Business Award"
- Our United Villages has achieved all of these benefits with virtually no operating grants from funders at any point in its history.



Figure 1. One of the Rebuilding Center's fleet of biodiesel powered trucks, ready to pick up a new load of donated materials.

## History

Our United Villages was founded in 1997. On its website, it posts a story about the founding of the organization that illuminates the meaning of its mission, and which staff relate to every new employee:

*It all started when a group of neighbors started talking on the sidewalk.*

*In 1996, a drive-by shooting took place in a Portland neighborhood. No one called the cops, and a shocked neighborhood came together to ask, "How is it possible that one of us gets shot at while the rest do nothing? How did we get to this place as a community, and what do we do now?" These neighbors were different races, ages, and had different income levels and backgrounds. What they had most in common was they all called the same neighborhood home and they all wanted to make the neighborhood a better place.*

*Neighbors began meeting informally to share meals, ideas, and to get to know one another better. They talked about poverty, violence, and isolation. They asked themselves, "With all the resources that are available, why do these social problems continue despite society's best efforts to solve them?" As neighbors talked more, they discovered many similar hopes and dreams for their neighborhood.*

*When the discussion turned to how to cut down on crime in their neighborhood, David bubbled to the top of the list. Only 13 years old, David (not his real name) and his buddies were responsible for a lot of the vandalism and theft in the neighborhood. One neighbor asked, "Does anyone know David?" Another responded, "Yeah, I've told him to stay away from my house." The neighbor asked again, "But does anyone know David? Does anyone know what is important to him?" In an effort to understand David, this neighbor decided to reach out to him and ask, "If you could have anything in the world, what would you want?" David replied, "A million dollars, a motorcycle, and braces."*

*At their next gathering, the neighbor shared David's response with the group. The collective wheels started to turn, and though David was out of luck on the million bucks and too young for the motorcycle, the neighbors began to brainstorm about how they could get David a straighter set of teeth. Neighbors met David's mother and learned more about her family. David's mother recognized the need, but couldn't afford the braces. She gave her approval for the neighbors to look into it.*

*Later, one of the neighbors was getting his haircut and shared the story of David. The stylist was so moved, she not only cut his hair for free, she pulled \$50 out of her purse to give towards David's teeth. The hairdresser also knew of an orthodontist who might be able to help. In support of this community effort, the orthodontist offered his services for half the normal cost and began working on David's braces immediately. At the next gathering, neighbors were even more inspired to work towards getting David braces. It took the neighbors six months to raise all the money. Some people matched the \$50 from the stylist and others gave a dollar or two.*

*After David's teeth were straightened, one of the neighbors was working in her garage when David and a few friends passed by. David turned back and came up to the neighbor to say, "If I didn't know you, I would steal those bikes." This neighbor brought the story back to the next gathering. One wise woman said, "You know, we haven't changed David, but we have changed our relationship with him." He's not going to steal from them anymore, and he won't allow his friends to do so either. The neighbors had changed too; instead of complaining about the kid down the street that causes problems, they saw David as an individual and a neighbor they were getting to know. They realized that when you change your way of doing things, you can get a different outcome.<sup>11</sup>*

*Before long, neighbors were working together—with common goals and visions—to benefit the entire community. Individuals of different ages and social, economic, racial,*

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<sup>11</sup> <http://www.rebuildingcenter.org/ouv/history.html>

*and ethnic backgrounds were able to work side-by-side in the healthy development of their community. Through this experience, Our United Villages learned that a great deal of the discontent that is at the roots of society's social problems is caused by a lack of deeper connections between people who share communities.*

*These neighbors proved that the capacity to make a positive difference and solve problems in our communities exists within us and each other. It begins with people connecting with one another and working together to achieve commonly held hopes and dreams for the future of their neighborhood.*

Another article continues the story of the formation of Our United Villages and eventually The ReBuilding Center:<sup>12</sup>

*"Inspired, neighbors started looking for ways to help each other... An elderly lady living alone was given a whistle she could use to call for help. Basketball hoops were installed in driveways for neighborhood use. Shane remembers thinking, 'Why aren't all of our communities doing this? Why aren't we engaging each other? It's how we live and live with each other that helps us make healthy decisions.'" Shane [co-founder and current Executive Director Shane Endicott] and several other volunteers decided to start an organization, Our United Villages, to share the stories and lessons they had learned. Says Shane, "It's an organization that inspires people to look at what they can do as individuals to increase the health of their local community."*

*They decided from the start to avoid some of the pitfalls of dependence on grant funding. "We asked ourselves, 'How can we create a sustainable source of funding that also models the spirit of our mission?'" Shane remembers. "Someone said, 'The Wood Depot [a building materials re-use program that had been offered by the St Vincent de Paul Society, and for which Shane had worked as an employee] was a great thing. That was really a bummer that they stopped it.' Then all of a sudden I started talking about how successful it was... that conversation evolved to 'Why don't we do it again, but on a much grander scale?' That was how it happened."*

*Shane left St. Vincent de Paul and spent a year as a volunteer preparing a business plan to lay the groundwork for the ReBuilding Center, which became the first project of Our United Villages. "We started the ReBuilding Center as an example of taking local resources that are being wasted, taking thousands of pounds of waste, and turning it around to benefit the community directly," explains Shane. "We take the proceeds and reinvest them back into the goals and activities of the ReBuilding Center – which is diverting waste for reuse. Any proceeds above that are reinvested in local communities to get people to come together around a common table in their immediate neighborhood to talk about ideas to make their neighborhood a healthier place to live for everyone."*

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<sup>12</sup> <http://www.sustainablenorthwest.org/stories/rebuilding-center>

Our United Villages incorporated in 1997, and the ReBuilding Center opened just eight months later. Launching the non-profit business was a labor of love. They had no money, no place to store materials, and a lot of volunteer energy. "We had no building and we were saying we would take anything from a doorknob to a complete house. And we got a complete house donated from the roof to the foundation." Volunteers loaded it in their driveways. So we had these building materials in driveways waiting for a space. We were these crazy people that had no money. We had nothing, other than a lot of passion for our vision." They found a temporary site and borrowed \$15,000 against a volunteer's credit card. With that, they signed a month-to-month lease and started paying four employees. Says Shane, "We were in the black right away. We paid that \$15,000 back. It just kept going from there."

Knowing their lease could expire at any time, they searched for a permanent site. Shane called about a building that looked promising in north Portland. "I think at that point we might have had less than \$1,000 in the bank. It was ridiculous." The building was listed at \$1.2 million dollars. Undaunted, Shane looked into federal loan opportunities aimed at creating jobs in underserved communities. They qualified for a \$700,000 loan. Portland's Meyer Memorial Trust came up with another \$200,000. After nine months, they were still short \$300,000. The owner of the building called Shane into his office. Shane remembers, "He said, 'You know, when I got the call that you wanted to buy my building and you had no money, I said to my broker that these guys are like kids who aren't old enough to drive walking on a car lot without enough money to buy a car.'" But their dedication had impressed the owner, and he now wanted to make the deal work. He told them, "You buy the building from me, and I'll donate the land – it's worth \$322,000. We're done. And I'm glad you're going to bring this to the community."

They sealed the deal in December 1999, just one month before the ReBuilding Center had to vacate its temporary site. Says Shane, "We had worked on this thing day and night. Some of us were working seven days a week. I had a bed at the old ReBuilding Center because I would work so late. It was intense. It was wonderful."

The ReBuilding Center began offering DeConstruction Services just before they moved into the new building. "We bid just like a demolition company. But we do it all by hand. We deconstruct systematically, the reverse of the way the house was built. We go in and take all the finish material out. We take the roof off, and work our way down the foundation. We de-nail everything. We re-wrap it. We prepare it for reuse, and then we bring it to the ReBuilding Center. The homeowner or property owner gets a tax deductible receipt."

In 2002 the ReBuilding Center further diversified, launching a line of home furnishings made from castoff materials with little or no potential for reuse. ReFind Furniture is crafted to accentuate the textures, holes, and gouges that make their materials unique. The ReBuilding Center's revenues have grown every year, starting around \$300,000 in 1998, to \$1.7 million in 2002. "To this day, not one dime of grant money has funded our operations," says Shane.

## **Values**

In observing the actions and hearing the words of Our United Villages staff, a set of values or organizing principles emerge that guide its work. These values are not formally stated in the employee handbook but are part of the organization's culture and are frequently cited by staff:

### **Building relationships**

Says Our United Villages' Executive Director, "This [organization] is not about selling materials, this is about building relationships in the community that can last a lifetime." Everyone who walks in the door is welcomed, as the idea of building relationships is infused throughout the organization, its language and culture, and its operations.

- ReBuilding Center staff prefer to refer to "customers" as "guests" or visitors." As the employee handbook states: "We can add to our guests' and visitors' experience by sharing the knowledge of how our operation works and the history of the building materials. In doing this, we build genuine friendships and relationships that may last a lifetime, which are the essence of building a healthy community." For example, at a recent staff meeting, staff shared a letter from a local special education teacher thanking them for hosting a field visit for her class, and sharing photos of projects her students made (such as bird houses and tic tac toe boards) using materials from the ReBuilding Center.
- Staff are instructed to treat everyone the same and make sure that "everyone walks away with something, even if it's just inspiration or a smile on their face," as the Executive Director puts it.
- Every effort is made to hire from the local community, and community space is provided as a part of the ReBuilding Center. And staff themselves ask each other "how was your day," not expecting to hear a sales report but rather about who dropped by. The Executive Director continues, "What we are really banking on here is that if people are having a great experience when they come in here, the economics of it are going to work themselves out."

### **Value existing resources**

The most obvious expression of this value is in how The ReBuilding Center seeks ways to reuse even the humblest of building materials, and how staff are careful to convey respect even when turning away a donation (the culture of the organization is to say "we can't find a home for this" as opposed to "that's trash," nor do staff refer to any materials, even that which might end up being disposed of, as "junk"). But the culture of the organization is also about conveying deep respect to the people around oneself, a critical part of the resources in any community and any organization. A core expectation of staff is to treat everyone exactly the same. As the employee handbook states, "The members of this community have



respect for one another and make a sincere effort to recognize each other's humanity." Even for people who may bring a difficult past to the organization, "we judge you based on who you are today and your willingness to be a part of what we're trying to do," says the Executive Director. At times when the pace of work slows down, "people know that if we don't have work they won't be called in," says Our United Villages' Deconstruction Manager, "but we do our level best to keep everybody working." At times the organization has used financial reserves to avoid layoffs.

## Ecological integrity

Our United Villages' commitment to the environment extends beyond salvaging and selling building materials. The ReBuilding Center and Our United Villages offices themselves are made out of reclaimed building materials, as well as cob new construction for the ReBuilding Center walls. According to the Executive Director, very little of the reused materials in the office were from high-end pieces; approximately 90% of the office is built from more marginal materials. The ReBuilding Center's fleet of trucks runs on bio-diesel fuel, and 100 percent of stormwater is managed on site. The Executive Director states, "If we have to do something – anything we create or do, even just a sign, should reflect the values and principles of the organization and is an opportunity to showcase and inspire people about what we do. If we need to make a sign, we'll do it out of our own materials – and intentionally re-use marginal materials."



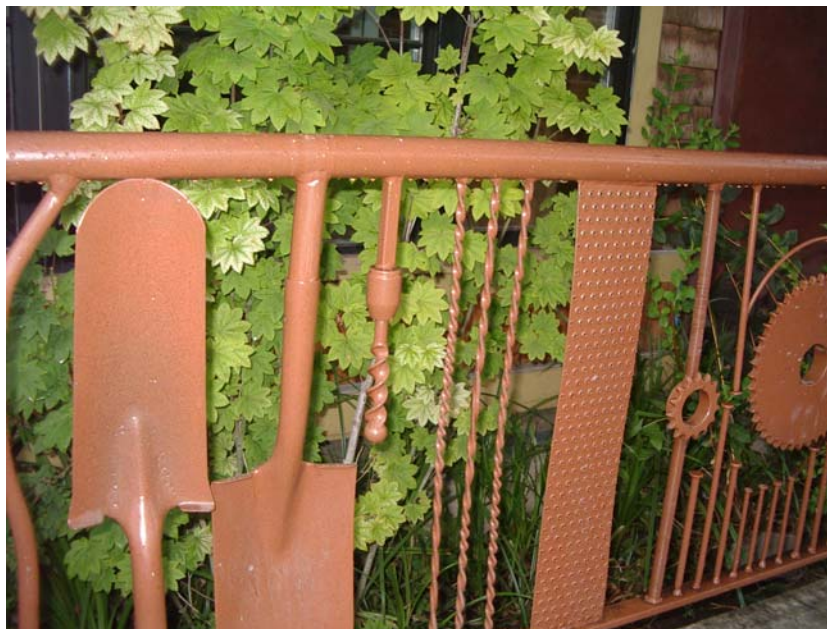
*Figure 2. Landscaping helps the ReBuilding Center manage 100 percent of storm water on site. Right, metal salvaged from ductwork sheaths the entranceway to the Our United Villages offices.*

### **Creativity in service of the mission.**

“Our mission is not up for debate,” says the Executive Director. “We are here to serve and we’ve made a commitment to the community that is not up for debate or discussion - but how to achieve it is *always* up for discussion and debate.” The Our United Villages employee handbook continues, “mistakes are inevitable when creative people do creative work. We believe that mistakes are learning opportunities and we expect each of us to learn from our mistakes.”

Our United Villages’ value for creative work is most directly revealed through the artistic expressions of staff and volunteers, whether the projects done at ReFind furniture or the fencing outside the ReBuilding Center created by a staff member.

Staff take obvious delight in fueling the creativity of visitors to the center. For example, one staff member who works in the warehouse related a story of “a few ladies who came in and asked me about how to do a mosaic. I got them to come to a class with ReFind Furniture and they made mosaic pavers with our tile for their yard – all with a box of tile they got for \$5!”



*Figure 3. This fence along the ReBuilding Center sidewalk was made from used materials by a staff member. (Yes, it conforms to code, too).*

### **Our United Villages’ Community Outreach Department**

All profits from operations of The ReBuilding Center support Our United Villages’ 3-person Community Outreach Department. This document focuses on the materials re-use aspects of Our United Villages’ operations, but the work of the Community Outreach Department provides a clear sense of the values and mission of the organization.

The Community Outreach department works from the proposition that everyone has something positive to contribute to a community. Their community building work seeks to identify these talents and strengths and build relationships between people in the community, so that they can then work together to benefit the entire community. The community building staff at Our United Villages help neighbors get to know each other through a variety of forums where they can talk about their ideas for improving the neighborhood, including purely social events, community meetings structured as “dialogues” or “conversations” on particular issues, neighborhood history storytelling events, workshops on community building skills and challenges, and staff consultations to help people with their ideas. The Community Outreach department does not take ownership of ideas that community members have, but rather supports them in developing their ideas into projects, programs, or events that help to build community. In short, the department’s work is grounded in the principles of Asset-Based Community Development, and in fact has been cited recently as a model by John Kretzmann (Kretzmann is the author of the book “Building Communities from the Inside Out”).



## ***Organization-wide operations***

### **Legal structure**

Our United Villages holds a designation from the US Internal Revenue Service (IRS) as a 501(c)(3) charitable organization, meaning that it is itself tax-exempt and donations to it are tax-deductible for federal and state income taxes. The ReBuilding Center is a d/b/a and program of Our United Villages, as is ReFind Furniture and DeConstruction Services.

The ReBuilding Center, ReFind Furniture, and DeConstruction Services all charge for the products and services that they provide; nor do they limit their services to a low- and moderate-income clientele. It is important to note that Our United Villages does not pay unrelated business income tax (UBIT) on any of this income. The IRS recognizes the organization as a 501(c)(3) because of its role in enhancing the community. Keeping materials out of the landfill is a part of this role and therefore none of the activities constitute an unrelated business.

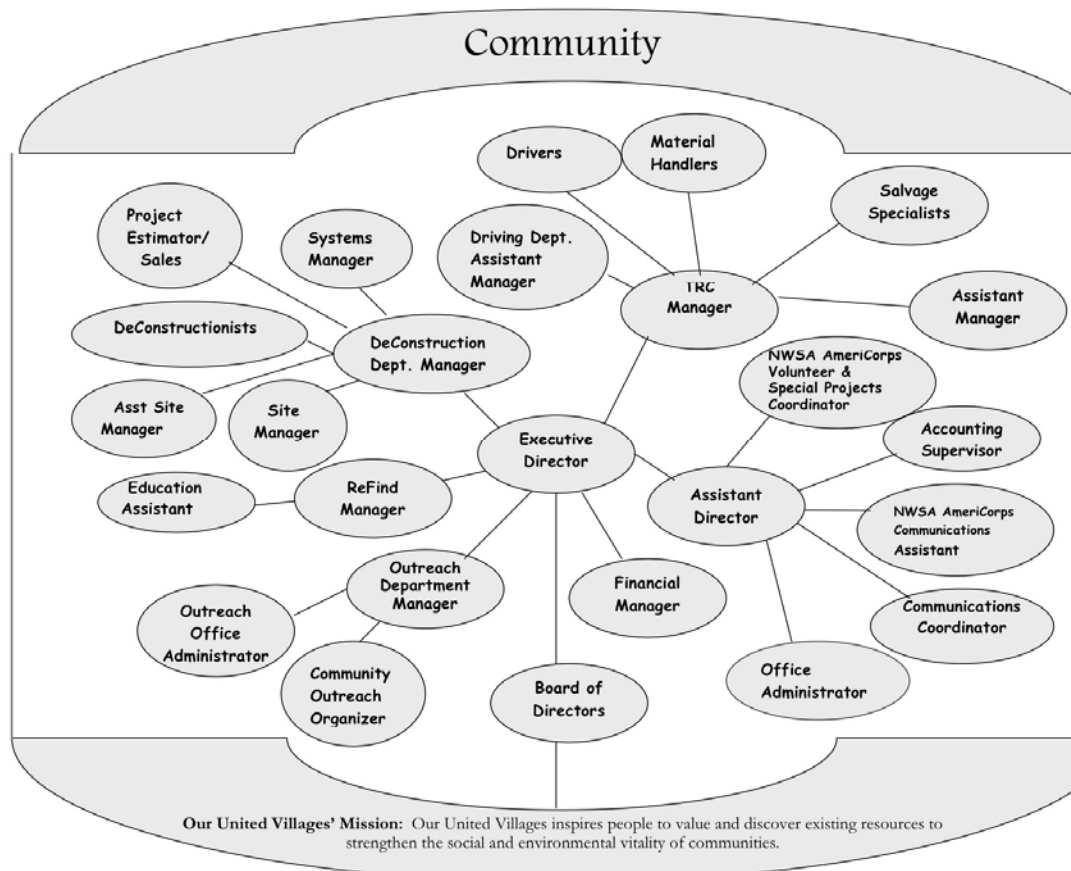
### **Governance**

Our United Villages has a community-based Board of Directors with 7 members as of September 2008. Board members bring backgrounds in areas such as construction, finance, small business management, community building, and marketing. The Board meets once a month to review financials and reports from each department. Committees include a marketing committee, finance committee, community outreach committee, and occasional special events committees. Committees are chaired by board members but may include participants who do not sit on the board.

### **Management and Staffing Structure**

Our United Villages has a staff of 45 people. Management includes the following positions:

- Executive Director
- Assistant Director
- Financial Manager
- Managers for each department:
  - Community Outreach Manager
  - ReBuilding Center Manager
  - DeConstruction Services Manager
  - ReFind Furniture Manager
  - Driving Department Assistant Manager. (The driving department is a department within the ReBuilding Center)



## The People Process

### *Management style*

At Our United Villages, leadership is exercised and values communicated primarily by example.

Staff describe the management style of Our United Villages as “values-based management,” meaning that the organization strives to integrate its values – of building relationships, strengthening community, fomenting creativity, and preserving the sustainability and health of the environment - throughout the management process. “We’re not a corporate culture,” continues one staff member. “We’re a group of humans who interact.” Staff describe the Executive Director as “dynamic, humble, positive and nurturing,” and the Assistant Director as a “problem solver and listener who helps work through operations issues.”

This management style is expected at every level - despite the fact that many of the activities in which the organization engages - trucking, retail, construction, and warehouse management – typically are managed with a more “command and control” style. Managers must bring skills and experience in these arenas yet fit in with the ReBuilding Center’s “values-based” management style.

Every job at Our United Villages is viewed by managers and other staff as highly important and value-added, even jobs that are removed from the Executive Director in terms of reporting relationships. For example, staff who work the warehouse floor in the ReBuilding Center hold the title of “Salvage Specialists.” The purpose of the title is to show the position carries authority and responsibility. Says the Assistant Director of the Salvage Specialist job, “There’s an art to building relationships, and determining pricing that is fair and attractive helps us meet our organizational goals to cover operating expenses. There is huge skill involved in that. And it is just hard work – picking up and moving things all day long, finding a place to put things, and staying positive about it.” Similarly, people who work on deconstruction crews have the job title of “deconstructionists” – intended not just as a play on words but as an indication of the complex knowledge and skills that go into properly taking apart a building. The Assistant Director continues, “a lot is expected of our employees.” “People who stay really want to believe in the mission,” adds a staff member. Employees do not clock in and out, although they are expected to submit a time sheet to their supervisor. “Our approach communicates ‘we trust you’ to employees,” says the Assistant Director.

### *Hiring*

Our United Villages does extensive local outreach to hire local workers, hiring around 80 percent of its workers from Northeast Portland. Employees are hired by a committee of 3 to 4 people they will work with. Senior management notes that “there is a real skill to identifying a good fit... being involved in hiring is key. We carefully work on our interview questions and always check references. We always wait to make a hiring decision until we feel as clear as we possibly can. But you don’t get it right every time. We have a 90 day introductory period and encourage all of our managers to take that seriously. It’s better if you decide it’s not going to be a good fit sooner than later.”

Many but not all employees bring prior experience in a related trade or skill area. Several employees have started out as volunteers at The ReBuilding Center.

All employees are paid a “living wage” as well as full benefits including medical and dental insurance and a retirement program.

As an organization started by volunteers, Our United Villages continues to operate a substantial volunteer program, itself coordinated by an AmeriCorps members. Over just an 11-month period spanning 2007 and 2008, some 858 volunteers engaged with the organization, providing over 6,000 hours of work time. These volunteers included 192 people who were required to perform community service hours. Our United Villages also hosts many corporate volunteer groups – for example from Nike, Intel, and Nordstrom.

### *Employee supervision and evaluation*

All employees have a written job description and meet with a manager once a week. All personnel have a yearly performance review, conducted in January. Expectations for employees are documented with written job descriptions covering the responsibilities and duties of each position, who that position supervises and is supervised by, and qualifications for the job; general work standards and employment policies are laid out in a

30-page employee handbook. Performance issues are addressed head-on, and with a problem-solving approach rather than one of blaming people. Staff communicate with one another directly when there are issues that must be resolved. While there are real rules set out in the employee handbook setting out expectations for all staff, Our United Village's management style is to address underperformance by finding out why it is happening and trying to resolve those underlying causes.

Our United Villages has terminated employment when it is clear that an employee is simply not a good fit. "It's a balance," says the Assistant Director. "Our mission is all about the relationships with people and our culture is about respect and caring about people, and so we want to make it work when we have hired somebody. We want to do everything on our end to train them and provide them with every opportunity to be successful." When they do have to let someone go, senior managers are very careful and pay attention to HR protocols and document decisions.

### *Learning*

Initial training for staff focuses heavily on shadowing other employees, as well as a thorough orientation to the employee handbook, a tour of all the facilities, and a safety orientation. After employees have been on board for several weeks, they will also meet with the Executive Director and receive an in-depth orientation on the history and values of the organization. From there, substantial on-the-job training takes place, as well as visits to other reuse centers and visits to mainstream building materials retailers to study their pricing.

Our United Villages strives to create a continuous learning environment for staff. As the employee handbook states, "We like to think of Our United Villages as 'wet clay.' Clay has strength, substance, and form. But if it's wet, you can press in and give it new shape. In a similar way, we give shape to Our United Villages by sharing our knowledge and ideas. By thoughtfully, creatively, and carefully pressing on the 'wet clay' of Our United Villages, each one of us contributes to making our organization a success."

Every Wednesday morning Our United Villages has a staff meeting with all the warehouse employees, the driving department, and ReFind employees, plus outreach staff and representatives of other departments. "That hour is probably the best time period in our organization when that learning happens on a consistent basis," says the Assistant Director. "We will do occasional trainings on any number of things, and always group information sharing, reflection and problem solving. We feel that we have a lot to teach each other. The ethos of the place is that everybody does bring value. Learning happens organically through valuing each other."

Several additional meetings provide staff the chance to solve operational challenges and learn from one another. The organization revises its meeting structures over time to ensure the most effective communication is happening. Currently, Our United Villages holds monthly all-staff meetings for the first hour of the day on the first Wednesday of every month. Department heads meet regularly as needed.

## Communications

Our United Villages employs a Communications Coordinator to help market The Rebuilding Center and its services. Much of her time is devoted to managing the website and producing collateral material (e.g. business cards, newsletters, and bumper stickers), as well as responding to media. In the first 8 months of 2008 Our United Villages has had a significant story published about it every 4.2 days in some type of national publication or significant local publication or media outlet, in addition to about one blog per day mentioning the organization.

The organization's marketing efforts are very grassroots, focusing on good banners and business cards for staff to hand out (for example, when they are on a deconstruction job), signs on the truck fleet, and minimal advertising in the Yellow Pages. Our United Villages does not actively seek to place paid advertising in media outlets.

The Communications department also has an AmeriCorps position to help attend trade shows, make presentations, and provide tours. In 2007, the organization went to 26 different shows include home repair and "better living" shows and the like. At the 3 largest of these events the organization talked to over 2,700 people, but it will also talk to small groups. Our United Villages made 34 presentations at organizations such as schools, the Portland Business Association, the Office of Sustainable Development for the City of Portland, the Portland Homebuilders Association, Portland State University, and the Realtors Association.

## Facilities

Administrative offices for Our United Villages are in a 3,500 square foot office space adjacent to the ReBuilding Center warehouse. The offices are built largely out of re-used materials – flooring, for example, is provided by solid-core doors.



*Figure 4. Office space for Our United Villages. Office partitions are created from re-used windows and doors.*

## Organization-wide finances

Our United Villages meets 100 percent of its operating budget – including expenses for its community-building activities – through earned income generated from the activities of The ReBuilding Center, ReFind Furniture, and DeConstruction Services. For 2008, expected revenues are \$2.95 million – all of it earned income from sales, service contracts, and related sources - and total operational expenses for all programs of Our United Villages are \$2.82 million.

As the table below shows, The ReBuilding Center is currently the main financial driver for the organization, generating the bulk of the surplus that covers the costs of the driving department, administrative department, and community outreach department. As described later in more detail, certain types of materials sales at the ReBuilding Center are very important to generating this surplus revenue.

### 2008 Budget Summary for Our United Villages

<b>Department</b>	<b>Revenues</b>	<b>Expenses</b>	<b>Net</b>
The ReBuilding Center	\$1,851,325	\$896,629	\$954,696
DeConstruction Services	\$946,000	\$934,585	\$11,415
ReFind Furniture	\$149,600	\$148,059	\$1,541
Driving Department		\$430,640	-\$430,640
Administrative		\$184,810	-\$184,810
Community outreach		\$227,268	-\$227,268
<b>Total</b>	<b>\$2,946,925</b>	<b>\$2,821,990</b>	<b>\$124,935</b>

The organization does seek grant funding for capital. The Warehouse carries mortgages on the property through HUD and the Portland Development Commission (the mortgage expense is allocated largely to The ReBuilding Center). Our United Villages does not currently have a reserve account to cover long-term repair and replacement costs for the building.

A key advantage of this financial structure is that since The ReBuilding Center does not depend on funders for operations, it is not subject to any operational boundaries that funders might set (e.g. serving only a certain income level), nor is it tempted to stray from its mission by funders offering money for programs that it wouldn't otherwise consider.

### *Financial Administration and Systems*

While Department Managers are responsible for developing and monitoring their departmental budgets, Our United Villages also has a Financial Manager and an Accounting Supervisor to ensure sound fiscal management. The Financial Manager is a contract position rather than an employee, and helps to provide a strategic view of the organization's financial picture. This contract structure allows Our United Villages to get high-level expertise at a less than full time basis. Among many duties, the Accounting Supervisor is responsible for financial procedures such as depositing incoming funds,

reconciling monthly bank statements, managing payroll, and managing accounts payable; this position must also manage administrative aspects of Human Resources functions, including the health benefits, 401k program and any workers' compensation claims.

The ReBuilding Center uses Quickbooks accounting, having moved from Peachtree software in 2005. Our United Villages staff strongly recommended ensuring that organizations spend adequately on obtaining adequate accounting and financial expertise as well as sound information systems.

## ***The ReBuilding Center (Warehouse)***

### **Products and services**

The ReBuilding Center takes in and diverts from the landfill approximately 8 tons a day of reclaimed building materials at its warehouse. This represents an increase over the approximately 5 tons a day that was handled in 2004. The vast majority of these materials is reused (purchased by or donating to someone who will reuse the materials), with the remainder sent to recyclers. While retailers occasionally donate small quantities of new products that would otherwise be thrown away, the vast majority of materials sold in the warehouse are used. “We want materials that society said was a liability,” says the Executive Director, “so that we can turn it into an asset.”

Through its driving department, the ReBuilding Center also offers pre-approved, free pickup of donated materials. Donors may also claim a tax deduction for the value of their donated materials. The ReBuilding Center provides donors with a detailed inventory of everything that was donated. The ReBuilding Center does not provide donors with a formal estimate of the value of their materials, but will give out resource information to help people with this need.

Store hours are Monday through Saturday from 9 AM to 6 PM, and Sundays from 10 AM to 5 PM.

Given that it deals almost exclusively in salvaged building products, the ReBuilding Center’s inventory shifts constantly. However, it generally has in stock a wide variety of products within each of several broad categories occupying different sections of the warehouse:

- windows of all sizes (both energy efficient, code-compliant windows and single pane windows for other uses; even window weights to help you fix an old double hung window)
- doors (including closet doors, and both hollow- and solid-core doors)
- lumber
- flooring
- siding
- pipes and ducts
- gutters and flashing
- appliances, furnaces, and water heaters
- lighting fixtures
- ceramic tile



- bathroom fixtures – ranging from toilets to Jacuzzi tubs (the ReBuilding Center does not sell toilets unless they are low-flush or parts to help people with their antique toilets that are grandfathered under the code).
- cabinetry and granite countertop remnants
- window shutters and venetian blinds
- unique items like gas fireplaces and steam radiators
- many more smaller items that a property owner might want, from cabinet hardware to fasteners to framing connectors to stove burners to dimmer switches

The ReBuilding Center does not skim off high-end materials to sell to dealers. Says the Executive Director, “We build a community relationship by selling the good materials too, which saves us on marketing. People think of us because we build the relationship and sell good materials.”



Figure 5. Items for sale at the Portland ReBuilding Center.

## Market

### *Market and Feasibility Assessment for the Reuse Center*

The ReBuilding Center did not conduct a formal market feasibility study before launching operations. Rather, it started small and grew organically, fueled by an abiding belief that the project would work and the Executive Director’s prior experience in reuse, working with his uncle on deconstruction projects in the 1970s and 1980s. “I started to get donations of building materials, storing them in driveways around North Portland, before I

had ANY facility, and it was an all-volunteer operation,” says the Executive Director. As the operation grew, the founders visited over 20 other reuse operations and listened to advice on best practices, but ended up making their own decisions (for example, they were advised not to try to resell hollow core doors, but proceeded anyway). Our United Villages staff recommend this incremental approach as the best way to test the viability of a new materials reuse center, as opposed to any analysis of secondary data.

### *Customers and marketing approach*

Customers at the ReBuilding Center, note staff, come from a wide variety of backgrounds and for a variety of different purposes: “it’s the person who lives on \$450 a month, the person who wants to come volunteer, the two elderly people who walk through the neighborhood, the neighbor fixing up his house and two little girls, the woman who heard we have high-end Italian tile, the landlord who owns 60-70 homes and wants a cheaper cabinet set; the person looking for \$5 cabinets for their basement; artists, do-it-yourselfers; a tenant trying to fix something before the landlord finds out; people doing backyard projects; people redoing their entire house.” There are no income limits for who can shop at the ReBuilding Center; indeed, people from all demographics can be seen shopping there.

In addition, some organizations shop at the ReBuilding Center, including architecture and design firms, nonprofit agencies, and the Portland Housing Authority. Large-scale developers are generally not a core customer – “If you’re building something big our materials are not as uniform. Our clients are willing to spend the extra time to make those items work for them,” says a staff member.

Customers reuse materials in a variety of ways. Many materials are reused exactly as they were originally used. In other cases, however, materials will be reused creatively in new applications. For example, many property owners in the neighborhood have installed windows into backyard fences, adding an artistic feel.

The ReBuilding Center tries gently to discourage dealers seeking to “flip” materials (buying cheap and selling dear). At the same time, staff make every effort to be respectful and not judgemental of visitors and guests.

Marketing efforts are strictly local in their scope, reflecting The ReBuilding Center’s desire to keep a low carbon footprint and create more local economic activity. Efforts focus on building strong relationships with customers and generating word of mouth referrals. Staff for DeConstruction Services and the driving department, people who are often out working in the community, bring collateral material and seek to build relationships with potential customers and encourage them to visit the ReBuilding Center. Classes in home repair and re-using salvaged materials are offered by ReFind Furniture, and these classes also help to draw people to the warehouse.

Advertising is minimal, and while pricing at the warehouse is very competitive, the ReBuilding Center is understated in how it uses pricing to market itself. As the ReBuilding Center manager, puts it, “we’re not ‘Crazy Eddie’ talking out there about how ‘our prices are crazy!’”

These marketing practices have achieved excellent penetration within the local Portland market for the ReBuilding Center. Staff estimate that they probably have sold a reclaimed building material to someone on every city block in the City of Portland.

### *Customer experience*

True to its values, the ReBuilding Center strives to make building relationships an important aspect of a visit to the warehouse or an interaction with the driving department. The philosophy in the warehouse is to treat everyone entering the store exactly the same. Staff will invest more time with people who need more help and give some specialized attention, but make sure that they respect everyone. Treating people well “opens up the possibility for dialogue and connection,” says the ReBuilding Center Manager. “We want to support this neighborhood and treat everyone well. And, you never know who you are talking to. One time [at the old warehouse] it was the project manager for our new building!” This has a marketing benefit: more people knowing the organization and its people means more sales and more donations. A lot of the time it may also mean a donation of some baked goods or locally grown eggs and vegetables for staff, from the friends they have made in the community.

A person who volunteers once a week in ReFind Furniture, notes that one of the things that is different about the ReBuilding Center is that “it’s an event to come here.” People can (and do) just come and hang out in the community space in front of the store, or bring their friends and roam the aisles to see what’s new. “You don’t go to Home Depot to see that,” says the Executive Director. “Here, it’s all about discovery. In fact, it’s a regular occurrence for people to come here from out of town – even straight off the airplane.”

A central aspect of the customer experience at the ReBuilding Center is the creative energy they are surrounded by in the warehouse. “Typically,” says the Executive Director, “if someone is remodeling a bath, they’ll have a design and then just go get materials. Here, you find a cool item and design around the item – you create the theme with it!” One customer even built an entire 1890’s replica house, using the actual historical materials. Notes the Rebuilding Center Manager, “that kind of thing keeps the excitement going here.” Staff encourage customer contributions to the Re-Use Gallery, a board of photos and descriptions of cool re-use projects. Customers who bring back a photo of their own project (no matter how small or everyday the project might be) will get 10% off their next purchase. The ReBuilding Center staff offers customers project advice as they shop, as well as encouraging them to take classes in the ReFind Furniture shop (discussed in more detail later on).

### *Pricing*

Pricing at The ReBuilding Center ranges from 50 to 90% below retail for a comparable new or vintage item. For example, a complete set of kitchen cabinets might sell for \$800. A window might sell for \$25. One salvage specialist relates a story of a young man who had

just come from a lumber store and was looking for top-nail flooring; he spent \$32 on flooring that would have cost him \$610 new at the lumber store.

Prices, of course, vary with the size and condition of what is being sold. Salvage specialists (the ReBuilding Center employees who work in the warehouse) may negotiate with customers, but the ReBuilding Center strives to maintain consistent pricing for similar items at 50 to 90 percent below retail, based on condition .

Setting prices and negotiating with customers is a critical aspect of the job for salvage specialists. Says the Executive Director, “If you just give flat prices all day things won’t move – you’ve got to be willing and able to negotiate! I teach salvage specialists to read body language – body language and tone is a huge aspect of what we understand from people. For example, let’s say we quote a price of \$50 for a door. If [the customer] squints, there is something wrong with the price. When they squint, you squint too and look more closely at the door. I’ll find a valid reason why the price could be less – ‘actually, looking at it closer, I’ll price at \$30 – how does that sound?’ Then I’ll say to customer ‘our number one goal is to see this get re-used and find a new home. Our second goal is to price it at 50 - 90% less than what it costs retail and cover the cost to operate this place so it’s here for future generations – we can’t give it away.’ If someone says ‘well, you get it all for free,’ that’s a great opportunity to educate [them] in a respectful way.”

As is the case in many stores, certain items are more important financial drivers for the ReBuilding Center than others. Staff estimate that 30 percent of the material in the warehouse pays for the other 70 percent to be there.” These items might include things such as a nice, stainless steel dishwasher; vintage, high quality doors; dimensional lumber; and high-end tile. But even these items are priced very favorably. For example, reclaimed old-growth lumber generally sells at a minimum of \$2 per board foot. The ReBuilding Center will sell this at \$1.25 per board foot.

“You could get quick bucks by pricing some items at a [higher] premium, but it is not sustainable,” says the Executive Director. “People think of us because we build a relationship with them and treat everyone with respect and kindness.” The ReBuilding Center will also donate materials to nonprofit groups that are unable to afford even the warehouse’s discounted prices. For example, staff recently agreed to help a local Differently Abled Business Association to find materials for their space. Recipients of donations are often schools or other organizations doing creative projects that reuse materials in new ways, although some organizations do reuse the item as it was originally used.

Even pricing mistakes can have their benefits. One time, the ReBuilding Center sold an especially nice sink to a customer for \$25 – a little more than the usual price for a regular sink. The customer who bought the sink brought it to a shop seeking a special part to repair it, and was informed he was the owner of a rare plumbing fixture worth three thousand dollars! The silver lining in the story was that the same customer told his story up and down the entire Oregon Coast, bring in customers from far and wide.

Customers can pay with a credit card, and may return any appliances that do not work for in-store credit if they do so within 2 weeks of purchase bring their receipt.



Figure 6. The ReBuilding Center sells many quality, hard-to-find materials at highly competitive prices.

### Competition

The ReBuilding Center does not regard other sellers of salvaged buildings materials in Portland as competition – rather, it welcomes them, guided by the belief that the flow of building materials that needs to be saved far exceeds what the ReBuilding Center can handle on its own. There is a Habitat for Humanity ReStore in Portland, for example, and the two organizations have a very collegial relationship.

### Operations

#### Staffing

There are a total of 22 staff in the warehouse and driving department. The ReBuilding Center manager, manages 11 salvage specialists, 5 truck drivers, and 1 materials handler, along with the Assistant Manager and Driving Department Assistant Manager.

Salvage specialists are responsible for unloading, stocking, and pricing materials while providing outstanding customer service. As stated on the job description, “the work is hard; the environment is fast-paced, supportive, optimistic and fun!” Salvage specialists must:

- Assist customers by providing pricing, information, and handling of materials. This includes promoting sales by offering ideas and suggestions to customers and

negotiating pricing, all with a friendly smile that builds relationships with the community.

- Assist donors by loading and unloading materials and providing accurate, legible tax-deductible receipts for donations.
- As needed, assist driving department staff by unloading trucks in a safe, efficient and timely manner.
- Safely stock and organize building materials – handling a constantly shifting array of materials in their section of the store, and culling out damaged materials.
- Answer the phone during business hours, providing informed responses to questions and inquiries.
- Keep up to date on current pricing trends as they relate to The ReBuilding Center inventory.
- Operate the cash register and related technologies in order to finalize customer purchases, as required.

Salvage specialists are assigned to departments within the store (e.g. lumber, appliances, the cashier's station), although at busy times some staff may move among departments. Staff use radios to communicate to one another with questions, which greatly reduces time lost running around the store.

Drivers assist the ReBuilding Center (TRC) warehouse and DeConstruction Services departments in pick-ups and deliveries. They help to safely drive, load, and unload trucks, provide donation receipts to donors, and may assist warehouse staff with customer service as needed. They will also help donors and customers who come to the store with loading and unloading materials and by providing receipts for donations. The one Material Handler has similar responsibilities to Drivers except for driving trucks.

Important qualifications considered in hiring salvage specialists, material handlers, and truck drivers for The ReBuilding Center include:

- Personal attitudes are very important. The ReBuilding Center seeks staff who are energetic, friendly and outgoing – since staff interaction with donors and customers represents the organization. As stated in the employee handbook, “grace and humor under pressure” is a key quality.
- For staff working in the warehouse, prior warehouse experience is a plus. Also, it is important for staff to be able to judge what materials to accept in the warehouse, help advise customers on their project and the proper materials for it, and have a good sense of what retail prices are for common materials so that they can set good prices. The ReBuilding Center regards these skills as teachable on the job if an employee brings the right attitudes.

- For staff driving trucks, some staff do have commercial driver's licenses. However, The ReBuilding Center is careful to purchase trucks small enough to be driven without a commercial driver's license.
- The physical ability to lift and carry heavy items (100+ pounds) throughout the day is another important consideration.

In addition to job descriptions, all ReBuilding Center staff are provided with operational guidelines that cover such tasks as opening and closing the store, handling transactions at the cash register, communicating with customers, accepting and turning away donations, responding to theft, holding items for customers, providing customers with price tickets so they can proceed to the register, answering the phone, driving trucks, flagging and guiding trucks, loading and unloading trucks, managing injuries, and other basic work processes. These recommended practices change over time as staff discuss operational challenges and learn from one another.

That said, "the traditional rules of retail management really don't apply here," says the Executive Director. "You have to take a non-linear situation and conform it to a linear environment to the best of your ability. Home Depot is all linear – the aisles, every process, everything. Even Goodwill is more uniform than us – it's all clothes on a rack. Being a salvage specialist is an art, not a set of standard operating procedures – or better put, our operating procedures are guidelines for the practice of an art."

Training for warehouse and driving staff is very personalized. Sometimes staff will conduct "retail theater" training – basically improv theater skits on handling common situations. Says the Executive Director, who also worked the retail floor for 5 years, "We do 'how to say no to a donated item,' 'how to deal with a difficult customer,' and so forth. We pull the audience into it too and they throw situations at us. It can be fun to inspire someone to see the possibilities in an item that is re-usable."

The ReBuilding Center Manager is responsible for providing leadership and supervision to this entire staff, including hiring decisions, mentoring and professional development, and work planning and performance evaluation. The Manager must direct and coordinate all warehouse and driving department activity and establish operating procedures; develop and monitor the budget; serve as a customer service role model and trainer; ensure safety and compliance; and work with the communications coordinator to market The ReBuilding Center. The ReBuilding Center and driving department Assistant Managers provide team leadership and assist with these management duties.

### *Materials Sourcing and Acceptance Policies*

All in all, about 8 tons of materials arrive at The ReBuilding Center every day. About 15 percent of materials donations to The ReBuilding Center – and about 75 percent of donations of lumber and trim – come from customers of DeConstruction Services. The remainder of materials received comes from donors who either bring in their donations or call the driving department for free pick-up service. Staff make judgment calls about when



to offer this service based on factors such as the value of the item, the likelihood of reuse, if the truck will be in the neighborhood, relationships with the donor, and so forth. The driving department picks up the equivalent of 5 20-foot flat bed trucks of materials per day.

The main rule guiding the acceptance of materials is whether they are re-usable, or “whether we can find a home for them,” as salvage specialists say. “We don’t just skim the top grade stuff. When the truck shows up at someone’s house to pick up a donation, people may decide to donate a nice piece because they are happy we are taking most of their stuff and that we respect them and all the stuff they want to donate,” says the ReBuilding Center Manager.



*Figure 7. Donations receiving area at The ReBuilding Center.*

Deciding on and communicating which materials will be accepted is a delicate process, as The ReBuilding Center wants to encourage people to bring materials in, but does not want to take trash and dangerous materials. Staff carefully go over the wording of acceptance policies to think through the impact it will have on donor decisions about what to bring in and what not to bring in. The ReBuilding Center will not accept paint, putty, or cement bags – things that aren’t solids and can spill. It avoids items with peeling or chalking lead paint or asbestos, windows or doors with broken glass, and other dangerous items. A copy of the materials acceptance policies is included in the appendix.

Materials acceptance decisions can be made at the staff’s discretion. Staff must use their judgment in exercising these policies. For example, The ReBuilding Center will recycle



broken glass that customers bring in, and might decide to dispose of small amounts of waste materials for a customer when they are making a donation of reusable materials.

While The ReBuilding Center will take unused items – which account for perhaps 3 percent of overall donations, unlike some other re-use centers, it does not actively solicit that sort of material. Also unlike some other re-use centers, The ReBuilding Center does not screen potential donations for items that are in demand or market for donations of only particular items. It is less formal than other organizations about maintaining a “wish list” for customers to indicate items they would like to purchase. Customers are asked to check back often, and salvage specialists will often keep an informal list of people who are looking for specific things and call them when something comes in.

A salvage specialist related a story of a “blind man who asked for my help because he needed help to find a black toilet lid. I told him that was a rare item, and asked him to come back with the broken piece so I could help him find an item that was the right style. He came back with a template, and just then the exact same lid showed up to be donated! “ She paused. “When you put out wishes for things to come and they do – there’s just something blessed about this place. It’s that special.”

### *Customer safety*

Management works diligently to ensure a strong safety culture at the organization. Staff are told that all staff are responsible for creating a safe environment. Signs at The ReBuilding Center advise visitors to be aware of potential hazards in the building and to exercise particular caution if they are bringing children.

The ReBuilding Center has decided to educate people about lead that may be present in reclaimed building materials, rather than reject all donations that may have lead-based paint. Items with intact lead-based paint are accepted. Customer handouts and signs in the store give warnings such as “attention: trim may contain lead paint – see a salvage specialist.”

### *Inventory management*

The key to inventory management for The ReBuilding Center is to maintain sufficient flexibility to handle the arrival of non-standard materials. Staff must continually work to reorganize the store, as the amount and kind of stock is always changing, to help customers access and see the material.

The ReBuilding Center does not track inventory beyond tracking receipts of donations and sales. Nor does it insure the materials – staff have determined that it costs more than it is worth in time, energy and resources to inventory in an environment where on average, every 15 minutes, something is going in or out of the warehouse. Instead, staff simply validate items when they enter and leave the building.”

A critical aspect of inventory management is adequate racking to help display materials. Inventory turnover is accelerated by avoiding “piles” of materials where customers can only see what is on top and may therefore neglect things at the bottom. Adequate racking helps to display materials more attractively, and also provides a safer store environment. Signage also helps people to find what they are looking for.

Removal of an item from the warehouse is not dictated by whether it has been there a long time without selling, but by its condition. About once a year, staff perform a spring cleanup and go through and sift out damaged items for recycling from the inventory, such as windows that were cracked or broken. The ReBuilding Center Manager notes, “I found some windows that have been here for years, but everyone has different tastes, so you never know. We keep pricing things or come up with re-use ideas to move stuff.”

Some items do tend to move much more quickly- for example, cabinets in good condition will sell in 2 weeks, specialty ceramic tile and other high-end items move fast, and lumber, especially 2x4's, will “sell like hotcakes,” note staff. But trim and hollow-core doors can languish. On rare occasions, The ReBuilding Center will put moratoriums on accepting further donations of certain items, such as hollow-core doors. In this event, staff ask would-be donors to hold on to these items so that they might donate them in a few weeks if the stock decreases.

Despite the lack of an inventory tracking system, ReBuilding Center staff are able to estimate the amount of material going through the warehouse using a waste diversion calculator they created. Sales are rung up by category (e.g. lumber, windows, or doors). By periodically analyzing the average pound of material per dollar of sales for each category, the waste diversion calculator estimates the weight of material sold. According to staff, this same practice is used by other reuse centers such as the Habitat ReStore in Kansas City.

The ReBuilding Center's main safeguard against theft is that no one may leave the building without a receipt for their materials. This policy extends to employees, who must also show a receipt for any items and cannot ring themselves out.



*Figure 8. Keeping materials organized and easily accessed for the customer requires constant attention.*

### *Facilities and equipment*

The ReBuilding Center's current warehouse has 53,000 square feet of built space on a 65,000 square foot lot. Located on Mississippi Avenue in Portland, the site is fully integrated into the fabric of the local neighborhood, yet it is also easy accessible by freeway (I-5 runs just a few blocks to the west) and by public transit (buses run on Mississippi Avenue and the warehouse is a short walk from the Overlook Park stop on the yellow line of the MAX light rail system).

The warehouse has multiple entrances and an alleyway running behind it as well as Mississippi Avenue in front, allowing multiple deliveries and pickups to happen simultaneously. "You are handling diverse size materials, and never know what you will have coming in," says the Executive Director, "so you want to have a site that you can improvise in and space that supports the materials flow." Parking space is another important feature of the site; parking areas can accommodate The ReBuilding Center's fleet of trucks as well as visitors who are shopping or bringing donations. The parking lot has 28 spaces; staff believe that a larger parking area would be desirable.

The Executive Director credits ownership of the warehouse with enabling Our United Villages to control its overhead and build assets. "Owning the warehouse is really important," he states, "so that you know the landlord can't keep raising the rent or sell it from underneath you."

The driving department relies on:

- 2 box trucks, a 25' and a 16' truck
- 1 stake truck, a 20' flatbed stake truck
- 5 20' gooseneck trailers, 1 25' gooseneck trailer, and 1 16' enclosed trailer, and 1 pickup truck to pull the gooseneck trailers

The Trucking department moves all the salvaged materials handled by The ReBuilding Center, including for DeConstruction Services (which also has its own trucks to transport tools and work crews). On average they bring 3 20' flatbed truckloads per day into the warehouse. All of the trucks are under 26,000 gross vehicle weight so that drivers do not need commercial vehicle licenses, although several staff do hold commercial licenses.

### **Finances**

As discussed earlier, The ReBuilding Center is currently the financial engine for Our United Villages. The ReBuilding Center expects \$1.85 million in income for 2008, essentially all from sales plus a small amount from recycling steel and glass. Expenses are expected at \$897,000 – or \$1.33 million if one includes driving department expenses. These expenses do not include the indirect cost of Our United Villages' administrative staff and expenses, which are expected to be about \$185,000 in 2008.

## ***ReFind Furniture***

### **Products and services**

ReFind furniture uses salvaged building materials to create high quality, artisan furniture at an affordable price for the level of quality. On its website, ReFind Furniture lays out the principles guiding the creation of its products:

- “Value-added. ReFind Furniture is functional, artistic merchandise made of what had been considered solid waste - short pieces of 100-year-old lumber, paint-coated strips of detailed trim, discarded cabinet drawers, weathered old window sashes and an eclectic mix of hardware and other items.
- Reuse. At least 99% of the materials used to build each ReFind Furniture item have been reclaimed. ReFind Furniture will divert and reuse tons of construction and demolition waste.
- History. ReFind items are created with materials from our region's architectural past. To the extent possible, ReFind attaches narratives describing the content and history of each piece.
- Affordable. ReFind's goal is to promote a variety of uses for reclaimed building materials throughout all sectors of the community. ReFind is committed to creating livable-wage jobs, providing hands-on training opportunities, covering its production costs and making ReFind products as affordable as possible.
- Functional. Not only is each ReFind piece artistic, it also serves a purpose. Take a load off on a ReFind bench, enjoy your lunch at a ReFind table, hang your jacket on a ReFind coat rack, or display your favorite family photo in a ReFind picture frame.”<sup>13</sup>

The furniture ReFind makes is “also an educational tool,” says the Department Manager of ReFind Furniture. “If people like something they see in the store, I will help them build one themselves. Part of my mission is to give away my ideas. The ‘inspiring’ part really does help to move materials out of the warehouse, as people see the examples.”

Additionally, ReFind Furniture creates flooring, denailing and sending donated wood to be milled and then selling it in The ReBuilding Center warehouse.

Finally, ReFind Furniture also offers classes for the community that help community members work with salvaged building materials for their projects, whether they are

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<sup>13</sup> Bulleted text above is excerpted from the ReFind website at:  
[www.rebuildingcenter.org/refind/](http://www.rebuildingcenter.org/refind/) Accessed September 4, 2008.

repairing a home or creating furniture or artwork like picture frames. Some recent classes have included “Intro to Power Tools,” “How to Hang a Door,” and “How to Install a Window,” as well as “Sculpture Basics with Found Materials” and “Garden Art.” Classes are typically offered on evenings and weekends, with 8 to 10 students per class. ReFind Furniture also offers free classes once a month to participants from other community groups and programs such as the Native American Youth and Family Association, senior centers, and youth mentoring programs. In all, about 250 people per year participate in a class or workshop.



*Figure 9. Some of ReFind's products, in the showroom at The ReBuilding Center*

## **Market**

### *Customers and marketing*

ReFind furniture serves a higher-income clientele than the typical ReBuilding Center warehouse customer, particularly focusing on higher-income homeowners who wish to live a more sustainable lifestyle – and sometimes for whom “sustainability is as much a status symbol as it is a legitimate life decision,” says the Department Manager. Some lower-cost items, such as picture frames, are purchased by a broader income band.

“Green” businesses comprise an important target market. ReFind furniture built and sold 50 tables to New Seasons Market, a local high-end grocery store, and has built pieces for restaurants. ReFind Furniture also sells items such as conference tables to other businesses that want to be more “green.”

ReFind furniture has several marketing strategies: it maintains a website ([www.rebuildingcenter.org/refind/](http://www.rebuildingcenter.org/refind/)), displays pieces at trade shows, and sends occasional mailers about its products. Nevertheless, staff believe that most clients of ReFind furniture have found out about it through The ReBuilding Center or through word of mouth. ReFind has been the focus of some media articles (of the “top picks for Portland” variety), which has generated a small amount of work. ReFind does not advertise much. Staff are working with the Our United Villages communications department to identify additional marketing strategies.

ReFind furniture is sold exclusively at the ReFind showroom, which is a section within The ReBuilding Center warehouse. Currently, a customer reaches the showroom through the main warehouse entrances; staff are creating a new entrance directly into the showroom from the street to try to increase traffic. Relatively small margins (discussed in pricing, below) on most items make it difficult to market items through other retailers, so ReFind has not pursued this strategy.

Classes were initially marketed through a partnership with Portland Community College, which helped to bring in a new audience. Currently they are marketed through occasional mailings, signs, and word of mouth. Classes are generally either full or full with a waiting list; about a quarter of students in classes have not been to The ReBuilding Center before.

ReFind Furniture relies heavily on contracts (mainly with businesses) for its revenues, with flooring sales and showroom furniture sales rounding out much of the rest of its revenues and classes accounting for the final fraction.

#### ReFind Furniture Revenues by Revenue Type, 2008 Budget

Contracts	53%
Flooring / lumber services	22%
Showroom sales	18%
Classes	6%

#### *Pricing*

ReFind furniture products are hand-made furniture. They are typically about five times more expensive than a comparable mass-produced piece such as from Crate and Barrel. Working with re-used materials simply requires more time; unique materials do not allow for automating production. Re-used materials also tend to be harder on machines in the shop.

Pricing is generally set by determining the time and materials required to make a piece, then adding on some margin. ReFind will take advantage the rules of supply and demand to put a higher margin on particularly unique and desirable pieces. Some examples of pricing include:

- A trestle table from reclaimed Douglass Fir, 29”H x 30” W x 84” D, for \$1,900

- A bookshelf made from 4 old drawers stacked up in an interesting pattern and divided up with additional pieces of wood, for \$185
- A “Streamline table”, 36” x 36” x 30”, from reclaimed Douglass Fir, for \$890
- Mirrors and picture frames from \$16 to \$30

Furniture generally sells at the highest margin. That said, high-end furniture is generally not that profitable, according to staff, as it is a very competitive market and machines can now mass produce detailed pieces quite cheaply. It is critical to find a customer base with values that support hand-made furniture.

Smaller items, such as picture frames and mirrors, are priced at a tighter gross margin. A picture frame selling for \$22 might cost perhaps \$16 to make, not including the associated sales, general and administrative expenses.

Flooring is a significant profit engine for ReFind Furniture. ReFind outsources milling at a cost of 12 cents per linear foot, and resells the finished product at \$1.40 per linear foot (or about \$6 per square foot).

Pricing for workshops ranges from a \$5-15 “suggested donation” for short, two-hour workshops, to \$80 tuition and materials for a three day workshop.

### *Competition*

There are some woodworkers and stores selling furniture from salvaged materials in the Portland area. These include Portico Style and Recycled Frames (the latter sells only picture frames). Another store, Eco-PDX, sells furniture from material salvaged in Indonesia.

## **Operations**

### *Staffing*

ReFind Furniture has two paid staff people, the Department Manager and the ReFind Assistant. Together, they produce furniture, track inventory at and stock the showroom, work with the communications coordinator to develop and implement marketing and outreach strategies, and develop and manage educational programs.

The Department Manager is in charge of designing the product line and must develop the strategies that will allow the department to meet or exceed its annual budget. The person in this position needs to have strong experience in furniture design and woodwork, as well as business management skills.

ReFind Furniture contracts with instructors to deliver many of the educational workshops. In addition, 2 volunteers currently work with the department, and volunteer groups will occasionally help out with specific projects. To combat the volunteer burnout rate, the Department Manager will interview volunteers and does turn some people away.



Volunteers generally start in relatively lower-skill roles, such as de-nailing lumber, and work their way up over time.

Finally, salvage specialists will help to sell ReFind Furniture products when they see a customer in that part of the warehouse. The Department Manager helps provide them with talking points to discuss the items for sale, and salvage specialists will find a ReFind staffer if necessary to talk with a customer in greater detail. ReFind is currently looking into hiring an intern to sit the showroom space, which staff anticipate will benefit sales and support security. Inventory at the ReFind Showroom is not insured.

### *Materials sourcing*

For small items (e.g. picture frames), staff select materials from the warehouse that might otherwise be hard to use. For example, staff made candle holders using old ceramic electrical fuses for the top part of the candle holder.

For larger pieces, staff seek premium wood with high visual appeal. The fact that many old homes in the Portland region have old growth wood in them makes for a greater supply of this material than other regions might have. DeConstruction Services is therefore critical for the survival of ReFind furniture since it generates the lumber that ReFind uses for most of its high-end furniture pieces (which in turn drive the finances of this business unit). In fact, about 90 percent of the material used by ReFind furniture comes from DeConstruction Services.

### *Fabrication process*

Fabrication takes place in ReFind Furniture's well equipped, 1,000 square foot workshop next to The ReBuilding Center warehouse. ReFind is looking to move to a "short-run" mass production model (making a small number of the same pieces) in order to reduce the cost per piece produced. Staff have already increased table-making productivity by 300 percent, and are seeking to raise and invest \$10,000 of capital in new machinery that will double production levels again and allow ReFind to lower prices.

For flooring, volunteers de-nail and metal detect salvaged lumber that is to be turned into flooring, then ReFind outsources milling at a cost of 12 cents a square foot.



*Figure 10. The ReFind Furniture shop.*

### *Classes*

Classes range from 90-minute workshops to weekend-long workshops. For weekend workshops, ReFind Furniture also holds an orientation on Wednesday or Thursday night before the workshop begins, so that participants have an idea of what they will be doing when they show up on Saturday. ReFind uses an Excel worksheet for customer tracking for classes. ReFind Furniture procures insurance to cover potential injuries to class participants; the cost amounts to less than \$10 per participant per year.

### **Finances**

ReFind Furniture expects to generate about \$150,000 in revenues in 2008, according to the 2008 budget, leaving a small surplus compared to expected expenses of about \$148,000. These expenses do not include the indirect cost of Our United Villages' administrative staff and expenses.

### ***DeConstruction Services***

#### **Products and services**

DeConstruction Services ("Decon Services") has been in operation for 8 years. It is a licensed demolition contractor – but does that work by hand, carefully taking apart buildings piece by piece, so that materials can be re-used. DeConstruction Services will do whole-building deconstruction, deconstruct parts of buildings, or do selective deconstruction in preparation for a remodeling project ("skims"). The deconstruction crew leaves behind a clean lot – or a clean, swept space for a "skim" job. DeConstruction Services has worked on buildings of many types and vintages, from homes to apartment buildings to commercial spaces, and from buildings built in the 1800's to buildings built after 2000

Of the components in a typical stick-frame house, DeConstruction Services is able to divert about 85 percent of these component types for reuse, and recycle another 5 to 10 percent of the component types.<sup>14</sup> The only items that get landfilled are plaster and sheetrock, some carpets, and sometimes vinyl siding if it can't be recycled or re-used.



*Figure 11. A deconstruction job in progress.*

DeConstruction Services is distinct from a “salvage contractor” model in which someone offers to help demolish a building in exchange for taking ownership of any valuable materials that can be salvaged. The donation of salvaged building materials to The ReBuilding Center is not tied to the provision of DeConstruction Services. For example, the client may decide to keep or sell salvaged materials – DeConstruction Services will do jobs even when it generates nothing in donations for the warehouse. Similarly, The ReBuilding Center warehouse will provide free pickup and accept salvaged materials from deconstruction jobs that were not done by DeConstruction Services.

DeConstruction Services is responsible for about 15 percent of the materials that pass through The ReBuilding Center, and about 75 percent of all the lumber that comes through.

DeConstruction Services completed 180 deconstruction jobs, including 13 whole-house deconstructions, in 2007. It has completed 25 whole-house deconstructions from January through October 2008.

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<sup>14</sup> Note that this analysis is by component types (e.g. wood, carpet, asphalt shingles, windows, etc.) and not by component weight. Concrete, for example, can be recycled but is generally not re-usable, and comprises a large percentage of the total weight of the materials in a house.



Figure 12. DeConstruction Services is the channel through which much of the lumber and trim sold at The ReBuilding Center arrives.

## Market

### Customers and marketing

DeConstruction Services serves a strictly local market. “The amount of redevelopment [in Portland] has really boosted us,” notes DeConstruction Services’ Manager. “Whole blocks are coming down and being redeveloped with 4-6 story mixed-use buildings – and there is a lot of remodeling as well.”

DeConstruction Services markets to several customer types:

- Remodeling contractors were one of the early target markets for DeConstruction Services and remain an important market today. DeConstruction Services subcontracts to remodelers use deconstruction to enhance the value they are delivering to the building owner (namely, a tax deduction plus environmental benefits). DeConstruction Services has relationships with some of the largest remodeling companies in the Portland area, such as Neil Kelly.
- Homeowners are the largest customer type in terms of number of jobs, including for whole-house demolition, since many homeowners in Portland buy homes for the land and then build new houses on the site.
- Businesses and governments have been the customers for other jobs, including some large projects. For example, DeConstruction Services worked on a Portland Housing Authority project to deconstruct 8,000 square feet of city housing, and a Portland Development Commission project to deconstruct a

school, convent, and gymnasium to accommodate an infill redevelopment project. DeConstruction Services also worked on a Lewis and Clark College project to deconstruct four houses to make way for a new dormitory complex.

### **2007 Customer Inquiries, by Job Type**

Customer type:	Homeowner	Contractor
All intakes	343	185
By Job type:		
“Skim” (remodeling)	111	69
Whole-house deconstruction	107	78
Garage	41	20
Other structure	31	12
Partial deconstruction	24	37
Interior finishes and partial deconstruction	23	18
Deck	14	3
Other / miscellaneous	30	14

DeConstruction Services has a website, advertises in the yellow pages, and attends trade shows. As shown in the table below, however, The ReBuilding Center is the largest referral source, and word-of-mouth as well as repeat business are significant job generators.

### **Customer Inquiries by top referral sources in 2007**

Source	Number of inquiries referred from source
The ReBuilding Center warehouse	93
Website	88
Previous client (repeat business)	65
Word of Mouth	49

Yellow Pages	37
Trade Shows	10
Realtors	8
Metro (government planning agency)	7
Architects	6

If you're thinking about launching a deconstruction business, to whom should you target your marketing? DeConstruction Services staff offer these thoughts:

- Small general contractors whose main business is remodeling
- Local municipalities and jurisdictions – “they always have excess properties they are demolishing, and they have solid waste concerns. In Seattle they are about to pass a city ordinance that would make deconstruction more attractive – they will process your building and demo permits quicker and reduce fees if you use deconstruction,” staff note.
- Consider marketing to a high-end clientele and contractors who do high-end work – “people who need the tax break and can afford it.”
- LEED has not really driven much interest in deconstruction to date, staff note, because people get almost as many points if they take the building down and source separate the resulting debris.

### *Pricing*

The pricing of DeConstruction Services jobs is done without regard to the potential value of materials donated to The ReBuilding Center, or the value of the charitable donation to the client. This is because, as mentioned earlier, there is no requirement for Decon Services clients to donate their materials to The ReBuilding Center.

DeConstruction Services tends to do a lot of remodeling jobs because demolition work for such jobs is almost always done by hand, so pricing for deconstruction work is often as competitive as for demolition work.

Whole –House Deconstruction, on the other hand, can cost anywhere from 30 percent to 70 percent higher than a traditional demolition. On an average house, it might cost \$20,000 for DeConstruction Services to deconstruct the house and sort the materials. This figure compares to \$10,000-\$14,000 for a traditional demolition. Although the value of the tax deduction needs to be factored in to get to an apples-to-apples comparison, “Customers really have to believe in it” to want to do it, staff note.

DeConstruction Services makes customers aware of the following benefits to deconstruction to encourage them to make this choice:

- It is cleaner and quieter, and generates less dust
- Less water is required to control dust
- Materials are salvaged rather than sent to the landfill
- Local jobs are created, since it takes 6 people to deconstruct a house where 1 can demolish it.
- Customers can use or resell the salvaged materials themselves, or claim a tax deduction for donation the materials to The ReBuilding Center.

### *Competition*

There are 2 or 3 for-profit providers of DeConstruction Services in the Portland area; they offer the same basic service and of course the building owner also gets the value of the salvaged materials (or tax benefits of donating materials). Deconstruction tends not to be an attractive niche to contractors because it is so time and labor intensive.

DeConstruction Services differentiates itself through the “community development angle” that it takes to its work. These extra touches often lead potential customers to choose DeConstruction Services over another contractor. For example, it will take school groups through project sites so they can learn what deconstruction is, as well as educate neighbors on the work that is being done. It will create a coffee table book for the property owners so they can show others what was done. Lastly, it provides an environmental calculator to building owners so they can see how much waste they diverted from the landfill. For example, DeConstruction Services dismantled 3 apartment buildings to be replaced with a new co-housing community, and calculated that the deconstruction work created the following benefits:

- 35,505 cubic feet of reusable materials out of the landfill
- 8,521 gallons of clean water, or daily water intake of 17,042 people
- 117 mature trees left in the forest, or 36 acres of new planted pine
- 2,343 square feet of affordable housing from the reused building materials
- 3,221 additional hours of work at a living wage, supporting the local economy
- 10.2 cars removed from the road in the reduction in greenhouse gases

Overall, however, DeConstruction Services welcomes “competition” within this space, since again, the more building deconstruction that happens, the more The ReBuilding Center is accomplishing its mission. Indeed, some of the “competition” are former employees who have started their own businesses with the encouragement of Our United Villages, and to whom DeConstruction Services subcontracts work from time to time.





*Figure 13. Salvaged flooring, sorted on the lawn of a house undergoing deconstruction.*

## **Operations**

### *Staffing*

DeConstruction Services divides its staff into teams, each of which is led by a site manager. While staff can be allocated flexibly to different teams depending on the size and type of the current jobs, DeConstruction Services is moving towards a system where it has one specialized team doing nothing more than skims (remodeling) and two teams for whole or partial house deconstructions. “My skim guys are very specialized at this point,” says the DeConstruction Services Manager. “I want my most experienced people on skims because the materials and the space needs to be somewhat protected – the work needs to be more surgical; plus, they need to work with the clients very well since they may be living there or often visiting.” He further notes that “there’s a lot of management skill” to forming the right teams for the job; “I need to know my people and skill sets and interpersonal chemistry.”

The job of a deconstructionist is hard manual labor that also requires thoughtfulness, and has to be done sequentially. Successful deconstructionists must bring a willingness to commit to a deep environmental ethic, and be willing to educate themselves about the proper practices of their job. They should also bring some background doing hard work. It could be as a framing contractor, in the concrete business, or in landscaping. Our United Villages’ job description for a deconstructionist calls for a minimum 3 years’ experience in general construction labor, the ability to lift 100+ pounds throughout the workday, and “self motivated, enthusiastic” workers who “enjoy physically demanding labor.”

Deconstructionists earn approximately \$12 - \$13 per hour plus full benefits. This compares to wages of \$25 per hour or much more in the local construction industry, depending on experience level – and deconstruction involves much harder physical labor than many other construction jobs. Therefore, passion for the mission is a key driver in



why people stay in the job. “Our folks feel really good when we have really high reuse content,” says the DeConstruction Services Manager.

Someone on site has to know how things were put together so that you can be able to take it apart well. In its early days, DeConstruction Services had a staff almost exclusively of former framing contractors who could achieve very high levels of performance. To this day, DeConstruction Services continues to employ a number of people who have spent many years in the building trades. These staff are typically the lead people on the jobsite, whether they are site managers, assistant site managers, or informal crew leaders.

Beyond helping with the actual work of deconstruction, site managers must schedule projects and do other pre-job tasks to get projects off to an efficient start, provide crew leadership and job site supervision, develop daily workplans and reports for each job, ensure worksite safety, facilitate change orders with clients and the central office, inventory salvaged materials and coordinate pickup of salvaged materials with the driving department and ReBuilding Center. They must also play a lead role in communicating with property owners, contractors, neighbors and others about the job and the overall benefits of DeConstruction Services.

DeConstruction Services also employs a Project Estimator and Systems Manager. The Project Estimator meets with potential clients and provides quotes for services after assessing the scope of work and establishing project plans and budgets. This position is also responsible for maintaining a project database, tracking sales statistics, and appraising project job results. The DeConstruction department Systems Manager provides administrative support and maintains organizational information systems and contract files, using this knowledge to help the department manager identify issues and address challenges.

To track job performance, DeConstruction Services uses time sheets to keep records on a spreadsheet for every job – how many people hours did it take, who was on the job, what were the tipping fees for materials that had to be disposed of, did we rent anything, consulting fees, materials purchases. The DeConstruction Services manager reports that the benefits of maintaining these records are that “You get increasingly accurate with estimating information, plus figure out why similar jobs took different amounts of time – for example, was it the team, the approach, and so forth. Ultimately we’ll use this data to develop more detailed performance standards and provide us with a foundation for growth – what jobs make us money, where do we do well and not as well, where do we need to increase rates.”

The DeConstruction Department Manager is responsible for leading the entire staff, developing and refining the business and operation plans for the department, determining the job schedule and staff assignments, preparing and managing the budget, and overseeing hiring, staff development, and staff performance evaluation for the department. Key skills for this position include a strong leadership background, deep experience in the construction industry, skill in estimating jobs and managing contracts, the ability to interface well with clients and potential clients, and the ability to manage a diverse workforce and keep it employed while achieving profitability.

## *Work flow*

Even though DeConstruction Services has an environmental mission its work comes with all of the challenges that any general contractor would face. After a call from a potential client, the first step in the work flow is to walk the project site, assess project feasibility and risks, and estimate the job. Project sites are reviewed for the presence of potential hazards, such as asbestos. DeConstruction Services will facilitate an asbestos survey and asbestos abatement work as required for clients, although the agreement is directly between the client and the asbestos contractor. Part of the estimation process also involves assessing the potential yield of reusable and recyclable content from the job. The client proposal will include not only a cost estimate but also an estimate of what will be reusable and how much debris to be landfilled will be generated.

DeConstruction Services uses a detailed Excel spreadsheet to do a deep analysis of likely person-hours on each job and build in contingencies. Says the DeConstruction Services Manager, “you need really highly delineated, very granular cost breakdowns and estimating” to do this part of the job right. For big jobs, DeConstruction Services will bring in another staffer (often the Department Manager) to get a second pair of eyes – especially when the building is not coming down completely because that makes them harder to do, or for high-end construction when the existing components are very well put together and therefore deconstruction may take longer. On all jobs, staff try to add at least one day of contingency.

Work scheduling and crew assignment is another key step early in the process. Deconstruction is the first thing that happens on a site, so client delays before the start date can have a significant impact on operations. At times, managers have had to scramble to pick up smaller jobs that can keep staff working when delays occur on larger jobs.

Once any hazards have been abated and utilities have been shut off, deconstruction work proceeds.<sup>15</sup> DeConstruction Services asks clients to put up a yard sign and/or banner for marketing purposes.

Deconstruction crews apply the same criteria as at The ReBuilding Center when deciding what items to salvage from a deconstruction job, and maintain salvaged items in sorted areas for reuse by the client or donation to The ReBuilding Center. Other items are also kept sorted as they are removed from the building so they can be recycled. “We have to think like the warehouse guys determining what we should be working to save and not,” says the DeConstruction Services Manager – “How much structural integrity do things have, what’s the condition of lead paint on the wood, how old is an appliance or fixture, and so forth.” A complete inventory is created of everything that is donated to The ReBuilding Center from a deconstruction job, so that the customer can claim a donation.

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<sup>15</sup> For a complete and detailed description of how deconstruction work is generally done, readers may want to consult the following resource: Brad Guy and Eleanor Gibeau (2003). Deconstruction Guidebook. The Deconstruction Institute. This guide is available on the internet at: <http://www.deconstructioninstitute.com>

DeConstruction Services will provide clients a list of materials appraisers who can help them establish the value of their donation based on this list of inventory.

After completion of a job, DeConstruction Services asks clients to complete a brief customer satisfaction questionnaire, asking the customer to rate their experience and provide suggestions for improvement.



*Figure 14. Building under deconstruction, down to the studs.*

### *Equipment*

DeConstruction Services has trucks and power tools similar to what a typical contractor would need, as well as a generator (clients are generally asked to provide a safe source of electrical power, but since utilities are generally shut off on the job site, if no other options are available a generator is used). The department maintains 3 vehicles: 2 long-bed crew-cab trucks sitting 6 people each with long beds, and 1 Toyota Yaris for the estimator. It also has a 12' tool trailer that the pickups tow, loaded with tools, and a dump trailer to dump debris. DeConstruction Services will rent roll-offs (drop boxes) when additional disposal capacity is required. The department is also looking to acquire a "skim van" – a utility van outfitted with the tools and equipment to do a skim, as well as an enclosed cargo trailer.

### *Safety*

DeConstruction Services is OSHA compliant and has a strong track record. OSHA conducts unannounced visits to job sites. Site managers are responsible for planning a safe work flow and job site for the crews. In addition, all workers receive lead paint safety training for workers, and have their blood lead levels tested when they join us and periodically

thereafter. Finally, building owners must generally shut off all utilities to the building, and jobs must have asbestos clearance before work can proceed.

## Finances

The only income to support DeConstruction Services is the payment the client makes to for the deconstruction work itself. Any income from sales of materials that clients donate after a deconstruction project is considered income to The ReBuilding Center.

While operating DeConstruction Services profitably has been a challenge in prior years, in 2008 the department expects revenues of \$946,000 and expenses of \$935,000. The department has experienced significant growth; as of August 2008 it had already exceeded the entire revenue stream from 2007.



Figure 15. A few last items to pick up at the store, and a thank you from a visitor.

## ***Appendix A: Materials Acceptance Policies***

### **THE REBUILDING CENTER**

of Our United Villages, a Non-profit Organization

#### **Don't Dump it, Donate it.**

All donations are tax-deductible.

All donations are accepted at staff discretion.

Please call (503)331-1877 with any questions.

#### **We Accept the Following:**

##### **Lumber, Trim, and Siding**

- Dimensional lumber: minimum length 4 ft, de-nailed, and in reusable condition.
- Trim: minimum length 5 ft, de-nailed, and in reusable condition.
- Plywood and paneling: de-nailed, 4 ft by 4 ft or larger.
- Siding: minimum length 3 ft, de-nailed, and in reusable condition. No vinyl siding.

**Cannot accept:** *Items with peeling or chalking paint, mold, dry rot, asbestos, or with insect, rodent or other pest infestations.*

##### **Doors**

- Interior and exterior residential doors.
- Hollow core doors: pre-hung, unpainted.
- Solid-core commercial doors.
- Aluminum screen doors: complete with frame.
- Shower doors: clean and complete with frame.
- Carriage-style doors.
- Sliding patio doors: thermal insulated with frame intact.
- Residential security doors: with or without complete frame.

**Cannot accept:** *Roll-up garage doors (except at staff discretion). Doors that are bowed, warped, or have peeling paint, drastic alterations, failing seals, or asbestos.*

## **Windows**

- Double (thermal insulated) pane vinyl and wood windows: 32 sq ft or smaller with clear (non-foggy) panes and intact seals. Larger than 32 sq ft accepted at staff discretion.
- Double (thermal insulated) pane aluminum windows: 20 sq ft or smaller with clear (non-foggy) panes and intact seals.
- Single pane wood windows (with or without frame): 32 sq ft or smaller. Only accepted if it is divided light, casement opening, or specialty. Larger than 32 sq ft accepted at staff discretion.
- Blinds & curtain rods: wooden only.
- Shutters.
- Window screens.

**Cannot accept:** *Windows with crumbling glazing or peeling paint, plastic curtain rods, plastic or metal blinds, curtains, drapes, or roll-up shades.*

## **Glass and Mirror**

- Glass up to 3 ft x 5 ft without glazing. Edges must be taped.
- Mirrors in frame.

**Cannot accept:** *unframed thermal panes, glass or mirror that is tempered, glue-backed, broken, has glazing, or with jagged edges.*

## **Kitchen and Bathroom Cabinets**

- Full kitchen cabinet sets and vanities—complete with doors and drawers. —and free of damage beyond simple repair. Particleboard/melamine cabinets--must be in perfect, reusable condition without any damage or delamination.
- Loose cabinet drawers and doors accepted if made from solid wood.
- Shelves, solid wood.
- Complete shelf units and bookshelves. Particleboard/melamine must be in perfect, reusable condition without any damage or delamination.

**Cannot accept:** *cabinet shells, loose melamine drawers and doors.*

## **Sinks**

- All types of white, metallic, and neutral-colored sinks—must be free of chips, cracks, deep scratches, or severe stains (exceptions: rare or vintage models).
- Wall mount sinks should include wall bracket, if possible.

**Accepted at staff discretion:** Custom colors (avocado, blue, etc.)

## **Tubs**

- All types of white, metallic, and neutral-colored bathtubs—must be free of chips, peeling finish, deep scratches, heavy caulking, glues, or severe stains. (Exceptions: claw foot tubs and rare or vintage models).
- Jetted tubs with working motor.
- Soaking tubs.
- Shower stalls. One piece without cracks.

**Accepted at staff discretion:** Custom colors (avocado, blue, etc.)

**Cannot accept:** Hot tubs.

## **Toilets**

- Low flow (1.6 gallons/flush or less). Exception: some pre-1940 models. Clean and complete with lid and free of cracks or chips (exception: hairline cracks in vintage porcelain).

**Accepted at staff discretion:** Custom colors (avocado, blue, etc.)

## **Appliances, Furnaces, Woodstoves**

- Appliances: less than 10 years old in perfect, working order (exception: specialty, vintage, and those with full kitchen cabinet set in reusable condition).
- Furnaces: less than 10 years old in perfect working order.
- Woodstoves: made post-1986 and DEQ or EPA certified.
- Pellet stoves.
- Fireplace covers and screens.

**Cannot accept:** *Baseboard and wall heaters, microwaves, thermostats, square heat ducting.*

## **Carpet and Floor coverings**

- Carpet: less than 1 year old, like new with no stains, odors, or tread wear. Must be rolled with measurement written on the outside. Minimum size 8 ft x 8 ft.
- Carpet squares: without adhesive.
- Vinyl floor tiles: full boxes, 10 years or newer.
- Linoleum: larger than 6 ft x 6 ft, 10 years or newer.
- Marmoleum.
- Tile: whole, no chips or grout.
- Manufactured wood flooring: new in the box, 10 sq. ft. or more.
- Wood flooring: no glue or mastic.
- Granite and marble slabs: 2 ft x 2 ft or larger.

### **Fencing**

- Metal fencing. Chain link rolled up without debris.
- Wood fence panels: whole, without rot.
- Gates.
- Plastic construction fencing.

### **Pipes and Gutters**

- Plastic and metal pipes and gutters: straight, 4 to 12 feet long.

### **Lighting**

- Light fixtures.
- Glass shades and globes.
- Florescent lights: 4 ft or smaller, residential voltage. If ballast, should not contain PCBs.

**Cannot accept:** *light bulbs.*

### **Miscellaneous Items**

- Commercial items: accepted at staff discretion.
- Sheetrock: in full sheets (4 ft x 8 ft), accepted at staff discretion.
- Hardware: door knobs, electrical, plumbing, etc.
- Hand tools. Power tools accepted at staff discretion.
- Bricks: whole and clean. A small amount of grout accepted at staff discretion.
- Cement blocks and pavers: whole and clean.
- Insulation. Batt insulation: clean and in bags. Rigid insulation with backing. Duct insulation: new and contained in original box.
- Roofing. Three-tab and architectural shingles: new in bundles. Wood shake roofing: denailed without rot.

**Cannot accept:** Furniture, desks, or office partitions. Smoke detectors or thermostats. Any liquids or powders (paints, grout, etc.). Loose fill insulation.

### **WE CANNOT ACCEPT MATERIALS CONTAINING HAZARDOUS SUBSTANCES:**

Asbestos-containing materials • PCB'S • Paint • Toxic or flammable products • Batteries • Contaminated plumbing • Containers that may have held chemicals of any kind



## ***Appendix B: Recommended Reading***

This appendix provides a brief resource listing of documents and websites that are helpful to anyone operating or considering operating a reuse center or DeConstruction Services business.

- The Portland ReBuilding Center website has many links and resources at: [www.rebuildingcenter.org](http://www.rebuildingcenter.org)
- Brad Guy and Eleanor Gibeau (2003). Deconstruction Guidebook. The Deconstruction Institute. This guide is available on the internet at: <http://www.deconstructioninstitute.com>. It provides a complete and detailed description of how deconstruction work is generally done.
- The Loading Dock, at <http://www.loadingdock.org/about/REUSE/index.html> , offers a case study, financials, and business plans covering its operations.
- The Center for Resource Conservation worked with consulting firm Point 380 to develop a best practices study and wiki for building materials reuse. You can access both via: [http://www.resourceyard.org/abt\\_events.php](http://www.resourceyard.org/abt_events.php)